

Coriolis Interface Module



The Coriolis Interface Module is designed for use in Emerson's FloBoss™ 107 Flow Manager and the ROC800L. The module works in conjunction with other user programs that run on the flow computers to enable you to get greater performance out of the flow measurement system.

The Coriolis Interface Module connects directly to a Micro Motion™ Coriolis meter's core processor (model 700 or 800). The direct connection to the core processor allows the Coriolis Interface Module to read a fixed set of predefined registers using Modbus protocol, retrieve that data, and store it in the Coriolis Interface Module. You can then use this data to configure the Coriolis meter, perform calibration and diagnostic functions, and monitor the meter's operation. Other programs in the flow computer can also use the data to calculate liquid and gas flow rates and totals.

When installed in the FloBoss 107, the module communicates with up to four Coriolis meters, recording all defined registers once per second.

When installed in the ROC809L or ROC827L, the module communicates with up to six Coriolis meters, retrieving the same data and storing it for the six meter runs.

Coriolis Interface Module

An “Intrinsically Safe” (IS) barrier is required between the module and the core processor when you connect directly to a core processor.

You can also connect a Coriolis module to a Micro Motion transmitter (models 1500, 1700, 2500, 2700, or Series-3000) and communicate with the core processor by retrieving data through the transmitter. When a transmitter is installed an intrinsically safe barrier is not needed.

You can use the data collected from all the registers to evaluate the performance of the Coriolis meter and assess the meter’s calibration. Using ROCLINK™ 800, you can access a number of displays resident on the module that enable you to perform a variety of functions. These displays include:

General Display

Shows a variety of data elements — including the Coriolis meter’s Modbus address, polling status, flow direction, volumetric flow rate, mass flow rate, sensor temperature, flowing density, and drive gain.

Calibration Data

Shows information including meter factors, flow rates, temperature, and density calibration data.

Diagnostics

Shows the status of many alarms and common performance data such as flow rates, temperatures, and drive voltages.

Meter Zeroing

Provides the ability to adjust the meter at established process conditions of temperature, pressure, and density while the stream is not flowing. Once you confirm flow is no longer occurring, refer to the meter zeroing procedure in the manual provided by the meter manufacturer to ensure the meter indicates zero flow under zero flow conditions.



Smart Meter Verification

Provides an easy-to-use automatic diagnostic tool to check the Coriolis meter’s performance and integrity without having to stop process flow. Whether combined with a digital control network or Emerson’s Smart Wireless Field Link, there is no requirement to visit the field.

Transient Bubble Remediation

This function addresses a routine process in the Coriolis core processor that monitors drive gain when its value exceeds a set threshold and adjusts the calculations for flow. Transient Bubble Remediation (TBR) handles occasional gas bubbles or slugs of air in the process fluid. The sensor's drive gain defines a transient bubble condition. If the drive gain exceeds the configured threshold for more than three seconds, the configured TBR actions are performed. The transient bubble interval continues until the drive gain is below the configured threshold for three seconds.

Transient Mist Remediation

When the Coriolis meter is measuring gas flow from a separator or other well head process, transient mist (oil or water) may appear in the flow. The sensor's drive gain detects a transient mist condition. If the drive gain exceeds the configured threshold for more than three seconds, the module performs configured Transient Mist Remediation (TMR) actions. TMR handles occasional gas mist appearances in gas flow. The TMR interval continues until drive gain is below the configured threshold for three seconds.

Production Volume Reconciliation

When you measure the flow of an oil and water mixture and have accurate measurements of the oil density and the water density, you can use a Net Oil Computer (NOC) algorithm to calculate the percentage of water in the oil and measure the Net Oil in the flowing mixture. Combining TBR and NOC allows you to perform Production Volume Reconciliation (PVR), and calculate factors such as:

- Water cut (% water in the oil) at flowing conditions
- Water cut at base conditions
- Net water produced
- Net Oil produced
- Emulsion density
- Net Oil flow volume (corrected to base conditions)
- Net Water flow volume (corrected to base conditions)

Measurement Modes

Continuous Mode

In this mode the module collects data regardless of flow rate, making the data continuously available. Programs can then calculate flow rates, correct volume, and accumulate flow in the stream. Programs can also extract the data from the Coriolis Interface Module and convert successive readings of the accumulated register to calculate the flow rate, eliminating the need for a transmitter to convert the reading to a pulse. This permits a direct calculation of gas flow or liquid flow.

Dump Valve Mode

In this mode, the module uses Modbus to continuously monitor liquid flow rates. When it receives new data, the module compares the volume flow rate from the meter to the user-defined volume low flow cutoff value and performs the following actions:

- If the value of the volume flow rate register is zero, the module updates the parameters in the module's point type corresponding to the values received from the meter, and no further processing of the data is performed.
- If the value is *greater than zero but less than the defined volume low flow cutoff value*, the module considers the volume and mass accumulated to be trickle flow. The module adds the accumulated volume and mass values to both the daily totals parameters and the separate trickle flow totals.
- If the volume flow rate is *greater than the defined volume low flow cutoff value*, the module considers the values received during the period during which the volume flow rate remained above the volume low flow cutoff value as part of a dump cycle.

Find us around the corner or around the world

For a complete list of locations please visit us at www.EmersonProcess.com/Remote



© 2014-2015 Remote Automation Solutions, a business unit of Emerson Process Management. All rights reserved.

Emerson Process Management Ltd, Remote Automation Solutions (UK), is a wholly owned subsidiary of Emerson Electric Co. doing business as Remote Automation Solutions, a business unit of Emerson Process Management. FloBoss, ROCLINK, ControlWave, Helicoid, and OpenEnterprise are trademarks of Remote Automation Solutions. AMS, PlantWeb, and the PlantWeb logo are marks owned by one of the companies in the Emerson Process Management business unit of Emerson Electric Co. Emerson Process Management, Emerson and the Emerson logo are trademarks and service marks of the Emerson Electric Co. All other marks are property of their respective owners.

The contents of this publication are presented for informational purposes only. While every effort has been made to ensure informational accuracy, they are not to be construed as warranties or guarantees, express or implied, regarding the products or services described herein or their use or applicability. Remote Automation Solutions reserves the right to modify or improve the designs or specifications of such products at any time without notice. All sales are governed by Remote Automation Solutions' terms and conditions which are available upon request. Remote Automation Solutions does not assume responsibility for the selection, use or maintenance of any product. Responsibility for proper selection, use and maintenance of any Remote Automation Solutions product remains solely with the purchaser and end-user.

Find us in social media



RemoteAutomationSolutions



Emerson_RAS



Remote Automation Solutions Community



Remote Automation Solutions



Global Headquarters North America and Latin America

Emerson Process Management
Remote Automation Solutions
6005 Rogerdale Road
Houston, TX, USA 77072
T +1 281 879 2699
F +1 281 988 4445

www.EmersonProcess.com/Remote



Europe

Emerson Process Management
Remote Automation Solutions
Unit 8, Waterfront Business Park
Dudley Road, Brierley Hill
Dudley, UK DY5 1LX
T +44 1384 487200
F +44 1384 487258



Middle East and Africa

Emerson Process Management
Remote Automation Solutions
Emerson FZE
PO Box 17033
Jebel Ali Free Zone - South 2
Dubai, UAE
T +971 4 8118100
F +1 281 988 4445



Asia Pacific

Emerson Process Management
Remote Automation Solutions
1 Pandan Crescent
Singapore 128461
T +65 6777 8211
F +65 6777 0947

Remote Automation Solutions

